RI Freshwater Wetlands Biomonitoring Plan

Progress update for Wetland Partners • December 1, 2004

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PURPOSE OF WETLAND MONITORING AND ASSESSMENT

The purpose of wetland monitoring and assessment is to document the location and extent of wetlands, analyze their condition, and document trends. For purposes of the Plan, the proposed goal is to provide information to help RI better protect and manage freshwater wetlands and their surrounding habitat. In addition to being a requirement of the federal Clean Water Act, in which states must monitor and report on the condition of all waters of the State (including wetlands), wetland monitoring is an EPA wetland program development priority and an element of RI's comprehensive wetland program.

The plan being developed will describe the objectives and strategy for freshwater wetland monitoring in RI, as well as how the information will be gathered, analyzed, reported, and used in the state. The plan will be included as a chapter in the DEM Comprehensive Water Monitoring Strategy, which has been drafted by the DEM Office of Water Resources and is now being reviewed by the RI Environmental Monitoring Collaborative. We expect to have a draft of the freshwater wetlands monitoring plan in early 2005.

HOW WETLAND MONITORING DATA MIGHT BE USED

The wetland monitoring plan is being developed with an emphasis on how information might be utilized and applied at the state and local level to improve protection and management of freshwater wetlands. The goal is to provide data that will inform policy and practices.

DATA NEEDS AND MANAGEMENT USES

From meetings and conversations with our wetland partners within and outside DEM, we generated a list of wetland data needs and possible management uses for the data. There seems to be widespread support for wetland monitoring and assessment in the state, given the current lack of information about the condition of our wetlands, although there are some cautions and many remaining questions.

Choosing Priorities

To help develop objectives for the monitoring plan, we asked people to suggest priority data needs from the longer list of data needs (which you contributed to and have received in previous messages). The following issues rose to the top as important priorities:

- **baseline monitoring** for long-term trends and decision making
- **basic "screening"** to ID problems & define reference sites
- assess **cumulative impacts** to wetlands by monitoring biological communities
- monitor and assess impacts to wetlands due to **loss of protective buffers**
- monitor and assess impacts due to **water withdrawals** (community wells, agriculture, golf courses)
- prioritize wetlands for **open space protection/acquisition**
- assess and monitor freshwater wetland **invasive species** presence and extent
- **compliance & inspection** support – i.e. restoration monitoring at enforcement sites

A few comments on these priorities

- A wetland monitoring program will produce necessary **baseline data** over time and act as a **"screening"** tool to help us identify problem areas, define reference sites, and document trends.

- Understanding **cumulative impacts** to wetlands is essential to making better protection and management decisions. Cumulative impacts result from land-use changes, water withdrawals, loss of protective buffers, invasive species, sedimentation, fragmentation, and a number of other factors. To achieve the long-term objective of assessing cumulative impacts, we recommend starting with manageable short-term objectives.

With that in mind, we needed to further prioritize the list of monitoring needs. Through discussions with some of you, wetland monitoring program leaders at EPA Region 1 and HQ, and managers at DEM, we are proposing the following as initial plan objectives :

1. prioritize wetlands for **open space acquisition**
2. monitor and assess impacts to wetlands due to **loss of buffer zones**
3. baseline monitoring for impacts due to **water withdrawals**
4. longer-term monitoring of restoration projects at **enforcement sites**

RATIONALE FOR FOCUSING ON THESE PRIORITIES

1. Open Space

An effective way to protect wetlands is through acquisition of wetlands and their surrounding upland habitat. Although there is no targeted wetlands acquisition program at the State level, State and local open space programs prioritize and acquire lands that may contain wetlands. In addition, the Division of Planning and Development at DEM has received federal funds under the North American Wetland Conservation Act (NAWCA) to acquire easements or titles to wetlands for the protection of waterfowl habitat. Information about wetland condition can indicate which wetlands might be best prioritized for protection and this information can be considered with other factors used to prioritize lands for acquisition. In addition, wetlands that are already protected can be monitored periodically to ensure that their integrity is maintained.

2. Buffer Zones

Existing rules and regulations aim to protect various wetland types, as well as a 50' perimeter around the wetland as a buffer. There is very little permitted loss of wetland each year, yet unpermitted alterations and losses to wetlands and buffer zones may threaten wetland integrity leading to loss of habitat, degraded water quality, and diminished capacity for wetlands to function at their highest levels. There is a growing pool of science that documents the importance of maintaining upland buffer zones around wetlands, not only to provide wildlife habitat, but also to protect water quality. In RI, we currently do not know the condition of buffers around our wetlands, nor the actual impacts of insufficient buffers on wetland condition. There is a need to assess the effectiveness of existing buffer protection strategies in the state as they relate to wetland condition.

3. Water Withdrawals

Understanding hydrologic changes to wetlands, in general, is critical to protection and management of wetlands. The impacts of water withdrawals on wetlands is an important management consideration at the State level with growing population and increasing demands for water use in the state. Information about the condition of wetlands near older wells can contribute valuable information about changes that may have occurred and whether those wetlands have been degraded or changed in some way by draw down from the wells. Monitoring of sites near more recently permitted well fields can provide additional information. The objective of gathering this information, and any additional baseline information about wetland condition before a new well field is operational, is to set programmatic standards about how much draw down and at what rate a wetland community can tolerate while still maintaining its integrity.

4. Restoration Monitoring at Enforcement Sites

The DEM Office of Compliance and Inspection (OCI) operates in response to complaints from the public. In the years 2001–2003 the average number of complaints per year was approximately 500 with about 20 of those complaints leading to a formal action of some kind. Wetlands and adjacent buffers are cleared, grubbed, filled, or drained without a permit. Required restoration was completed on about 3

acres of wetland per year during 2001-2003. Required restoration of wetlands is monitored in the short-term, but not in the long-term. A 2002 study by Lisa Cavallaro and Frank Golet indicated that restored wetlands performed at least one wetland function, but that wetland types created usually differed from pre-alteration types. Also, invasive species were present at 52% of the sites and were present more often at sites surrounded by high-density development. Furthermore, Cavallaro and Golet found that the number of complaints of wetland violations has increased over the past 30 years. The increasing demands on the staff of OCI do not allow for monitoring of enforcement sites beyond a minimum requirement. To ensure long-term success of restoration efforts and guide future efforts, it would be beneficial to include enforcement sites in a State wetland monitoring program.

METHODS AND APPROACH

Regarding the above priorities, we need to determine the best way generate and assess wetland monitoring data.

You will recall that EPA is advocating a three-tiered approach to wetland monitoring and assessment:

- Level 1 Landscape – GIS-driven; lower resolution, less resource-intensive to generally provide information about wetlands within a region such as a watershed.
- Level 2 Rapid Field Method - assessment requiring ½ to 1 day in the field; higher resolution, more resource-intensive
- Level 3 Site Assessment – characteristics of one or more assemblage (vegetation, macroinvertebrates, amphibians, birds, etc...) are described in response to the condition of the wetland; highest resolution, most resource-intensive.

At this point, we have ideas about how a landscape level analysis, as well as a rapid assessment approach, can be used to generate valuable information about wetland condition in the State and address our specific objectives. Other states have developed tools to address their own monitoring objectives. We suggest adapting existing tools for use in Rhode Island. We are currently drafting our ideas in the plan and will send them to you for comment in January.

HOW MIGHT THIS WORK BE ACCOMPLISHED?

As part of the planning process we are consulting managers and staff at DEM to see what can be accomplished in-house with existing resources. We expect to contract out much of the work with program development funding from EPA.

We will build on or apply existing freshwater wetlands data already gathered for RI, when possible. We also hope to cooperate with other state and local agencies to achieve similar objectives with greater efficiency.

NEXT STEPS

Please share your comments, ideas, and questions about the priorities for a State freshwater wetland monitoring program discussed above. We are currently fleshing out ideas for landscape and rapid assessment methods in a draft of the monitoring plan, which we will share with you in January.

Thank you for your time and thoughtful feedback!